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[redacted] 25X1

PAR 213

1 June 64

SUBJECT: Color Reproduction Systems Review

TASK/PROBLEM

1. In view of the recent importance attached to color photography by the intelligence community, investigate and determine the most suitable means to reproduce and utilize multiple copies of color materials. Determine the most suitable reproduction system and types of equipment to be used in all phases of the reproduction cycle. Also, attempt to define how color photography can best be utilized by the photo interpreter.

DISCUSSION

2. General

a. The initial organization of requirements for this PAR was accomplished and activities conducted per that organization.

b. Stereo pairs were chosen and mounted.

c. Local area flight scenes were reproduced on [redacted] 25X1 reversal paper and enlarged 10 diameters.

d. A ground rule was established to optimize printing for selected scenes when printing a continuous length.

e. Stable ME-4 100F processing was accomplished on the sensitometric lab processor.

f. Need for an accurate pH meter was established.

3. The reversal paper was processed on the [redacted] Rapid Color 25X1 processor. Resolution and color balance of the paper prints were poor. The printing balance which provided natural looking snow produced very green dark areas.

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4. Six out of forty-six exposures on 5X and 10X SO-271 duplicating film and reversal paper were considered acceptable and aerial scene quality on [redacted] paper deemed only fair. 25X1

5. A series of 19X exposures were made to determine correct exposure conditions for the remaining 19X requirements.

6. Transparancies

a. Tests were completed to evaluate [redacted] Commercial Film Type 7255 to be used as a reversal print film. 25X1

b. An H&D scale and a resolving power chart were printed on [redacted] High Definition Aerial Film Type SO-121. Three picture scenes on an experimental High Definition Aerial Film were also printed. They were processed in an ECO-2 process, (Modified ME-4) on the Sensitometric lab processor. 25X1

c. Critical evaluation of the system has not been completed. The type 7255 appear to be lower in contrast and better for color rendition than second generation duplicates on [redacted] reversal print film SO-271. 25X1

d. These prints look very good for sharpness and graininess.

7. Reflection Prints

a. A basic color reproduction system was evaluated. This system starts with the experimental high definition [redacted] Aerial scene. The original was enlarged 5X on [redacted] Internegative Film Type 6110. The material was processed on the N-31 internegative process. Color reflection prints on [redacted] Professional Paper were made from the internegative. 25X1 25X1 25X1

b. These prints were compared with prints from the same scene made directly on [redacted] Reversal Print Paper. The [redacted] reflection prints were much lower in contrast than the [redacted] reversal paper. Tone reproduction in the highlights and shadow areas was maintained while the same areas on the [redacted] prints were highly distorted. The [redacted] system was much superior to the [redacted] system. 25X1 25X1 25X1 25X1 25X1

8. Enlargements: The required work for reproducing the three snow scenes from a local flight on [redacted] Print Film (SO-271) was accomplished. The 5X and 19X enlargements were processed through the 25X1

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ME-4 process on the Sensitometric lab processor. We were surprised and happy with the amount of detail on the 19X enlargements which was reproduced from the original. The color balance of the prints was pleasing.

PLANNED ACTIVITY

9. Transparancies: Evaluation of [redacted] II for Daylight, Type 5029 and an experimental [redacted] Duplicating Film, flashed and unflashed, SO-271 and 7255 will be carried on during the next period. Hopefully, we will find a duplication material from among these which provides the best compromise for image quality, contrast and color fidelity. 25X1 25X1

10. Reflection Prints: Evaluation of the [redacted] reversal paper print system will continue; 10X and 19X Ektacolor prints will be made; evaluation of Resolving Power Charts carried through the system will be done; and the inclusion of better originals will be extensively pursued through the original program plan which is now narrowed in scope to specific systems considered to have the highest probability of success. 25X1

11. Enlargements: Maintain the work area so that dirt will not become a major problem, and continue our efforts to evaluate the quality of flashed and unflashed transparancies on [redacted] 5029. 25X1